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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,692	05/24/2004	Ebenezer E. Eshun	BUR920030190US1	3691
24241	7590	07/17/2006	EXAMINER	
IBM MICROELECTRONICS INTELLECTUAL PROPERTY LAW 1000 RIVER STREET 972 E ESSEX JUNCTION, VT 05452			LANDAU, MATTHEW C	
			ART UNIT	PAPER NUMBER
			2815	
DATE MAILED: 07/17/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/709,692

Applicant(s)

ESHUN, EBENEZER E.

Examiner

Matthew Landau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7, 8 and 10-20 is/are pending in the application.
- 4a) Of the above claim(s) 10-17 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-20 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Claims 10-17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant elected without traverse in the reply filed September 26, 2005.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneoya in view of Shiiki.

Regarding claims 1 and 7, Figure 1 of Kaneoya discloses a thin-film resistor comprising a conductor layer 2 (Ni-Cr) (col. 2, lines 10-13) formed on a surface, said conductor layer comprising end portions tapered at a constant angle less than about 90 degrees with respect to the surface to provide contact regions; and contacts 3/4 abutting said contact regions to provide for electrical coupling to said thin-film resistor. The difference between Kaneoya and the claimed invention is a SiN layer formed on the conductor layer. Figures 4A-4D of Shiiki disclose a thin-film resistor comprising a conductor layer 24 and a silicon nitride layer 25 (paragraph [0073])

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formed on said conductor layer. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Kaneoya by including a silicon nitride layer on the conductor layer for the purpose of protecting the conductor layer during any subsequent processing (i.e., etching of contacts) (paragraph [0072] of Shiiki).

Regarding claims 2 and 3, Kaneoya does not explicitly disclose the angle is between about 40 degrees to about 50 degrees. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Kaneoya by using an angle within the claimed range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Note that Applicant has not shown unexpected results or otherwise established criticality for the claimed range.

Regarding claim 4, Kaneoya does not disclose said conductor layer comprises tantalum nitride (TaN). Shiiki discloses a thin film resistor 18 made of TaN or a mixture of Ni and Cr. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Kaneoya by using TaN for the conductor instead of Ni-Cr for the purpose of substituting an equivalent material known in the art to be used for the same purpose (see MPEP 2144.06).

Regarding claim 5, Kaneoya does not explicitly disclose the conductor layer has a thickness of from about 45 nm to about 55 nm. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Kaneoya by using a thickness within the claimed range, since it has been held that where the

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general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Note that Applicant has not shown unexpected results to established criticality for the claimed range.

Regarding claim 8, a further difference between Kaneoya and the claimed invention is the dielectric layer has a thickness of from about 65nm to about 75nm. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Kaneoya by using a thickness within the claimed range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Note that Applicant has not shown unexpected results or otherwise established criticality for the claimed range.

Allowable Subject Matter

Claims 18-20 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art of record, either singularly or in combination, does not disclose or suggest the combination of limitations including said conductor layer tapered at a constant angle between about 20 degrees to about 70 degrees and contacts abutting said contact regions.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

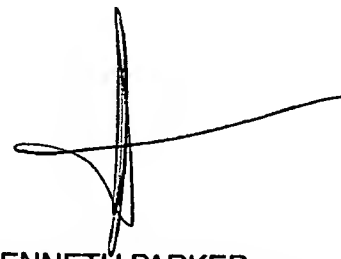
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is (571) 272-1731.

The examiner can normally be reached from 8:30 AM - 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on (571) 272-2298. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and (571) 273-8300 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should any questions arise regarding access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Matthew C. Landau

July 10, 2006

A handwritten signature in black ink, consisting of a stylized 'K' followed by a horizontal line extending to the right.

KENNETH PARKER
SUPERVISORY PATENT EXAMINER